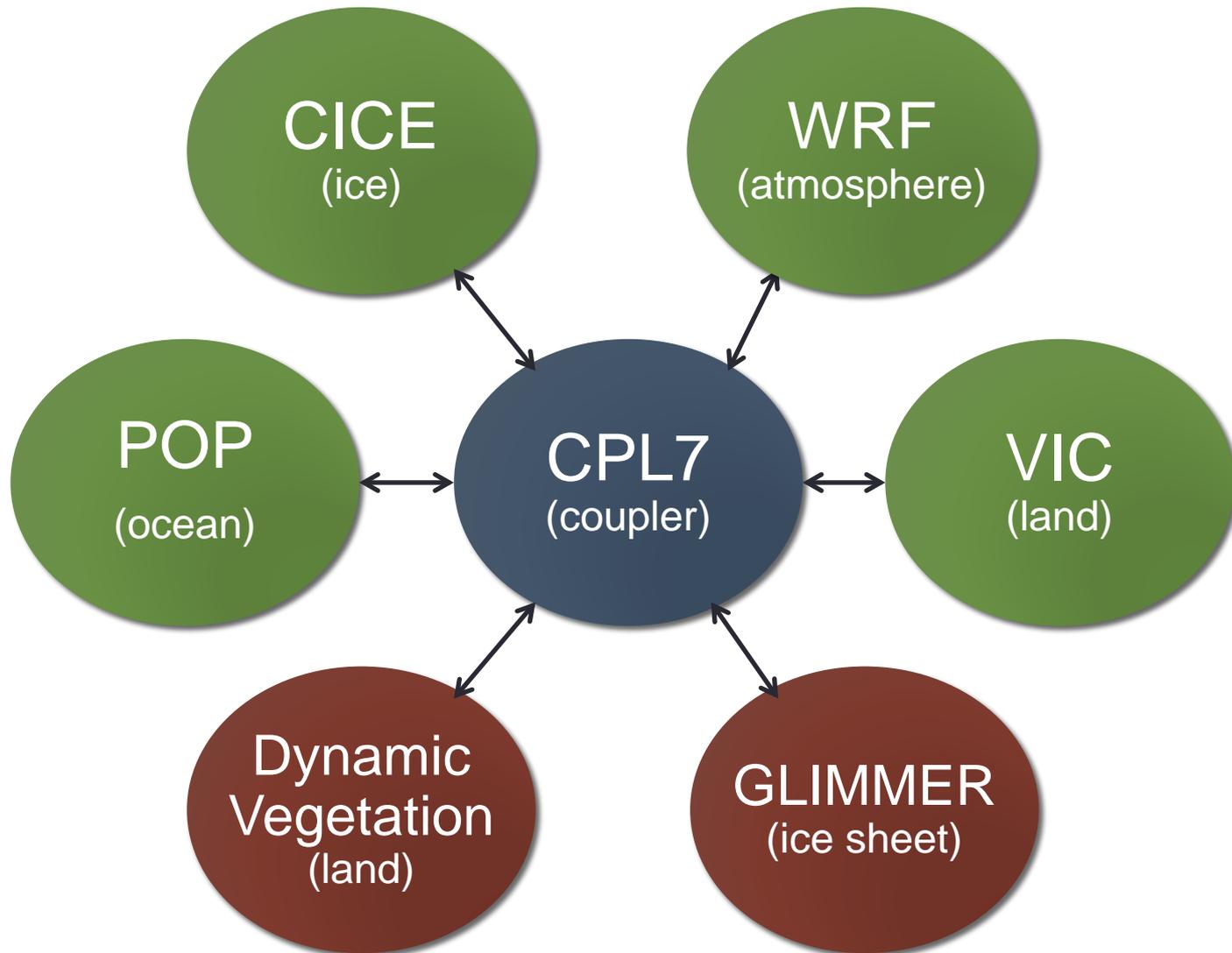


Atmospheric Results from the Regional Arctic Climate Model (RACM)

Matthew Higgins, John Cassano, Jackie Clement-Kinney, Anthony Craig, William Gutowski, Juanxiong He, Jaromir Jakacki, Dennis Lettenmaier, Wieslaw Maslowski, Andrew Roberts, and Chunmei Zhu

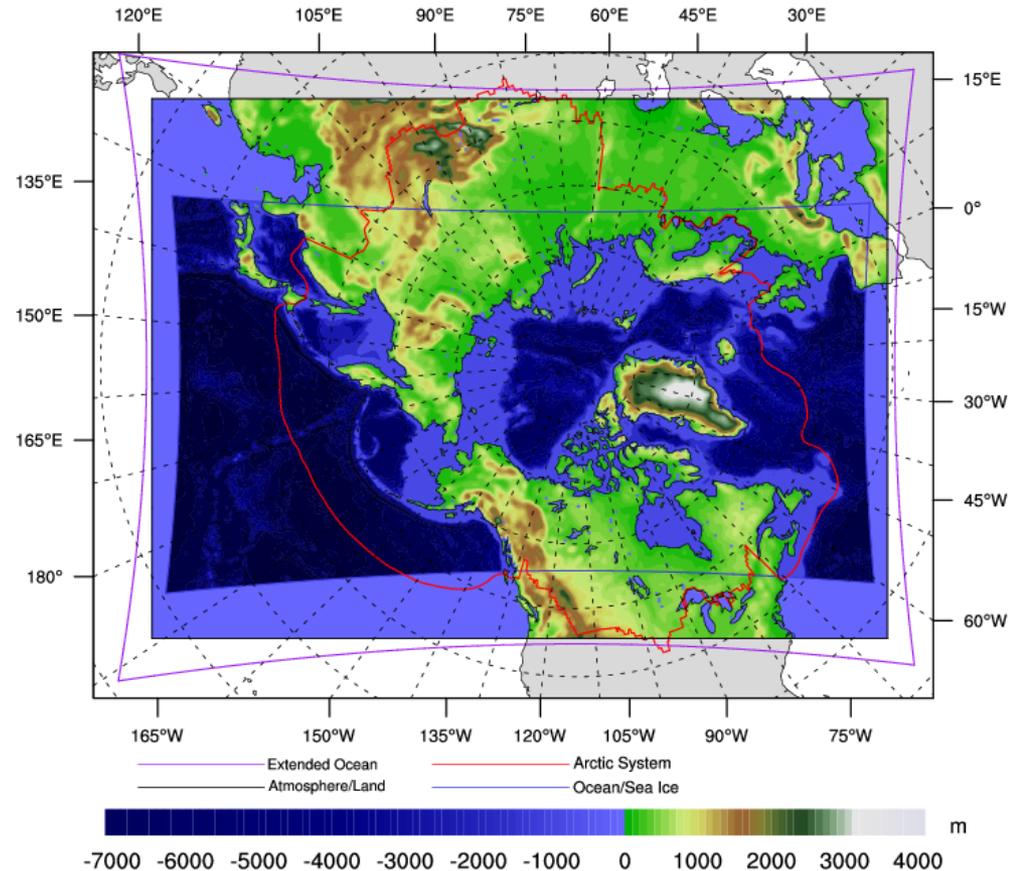


The Coupled Model



RACM Simulations

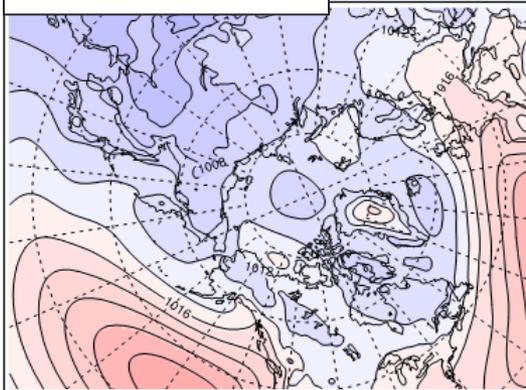
- 1989-2002
- atmospheric forcing: ERA-Interim forcing
- Ice, land and ocean forcing: pre-spun up, non-coupled simulations
- Spectral nudging option in WRF is on



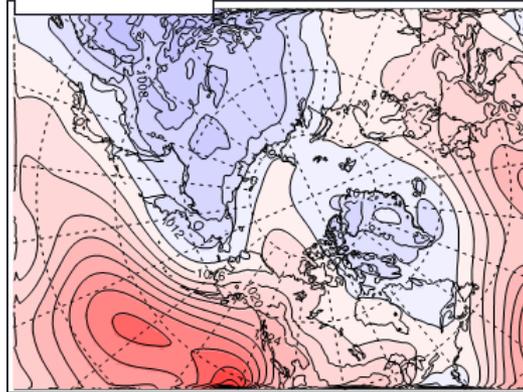
Sea Level Pressure – Summer

1989-2002 JJA Climatology

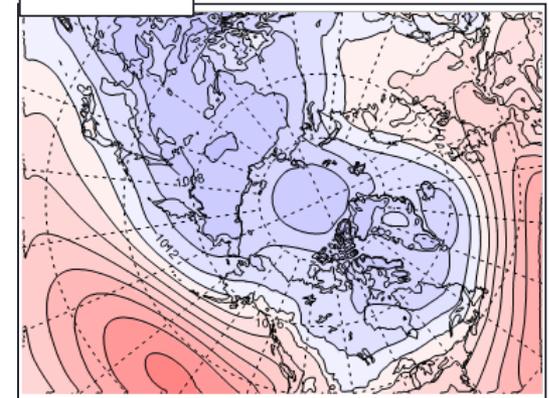
ERA-Interim



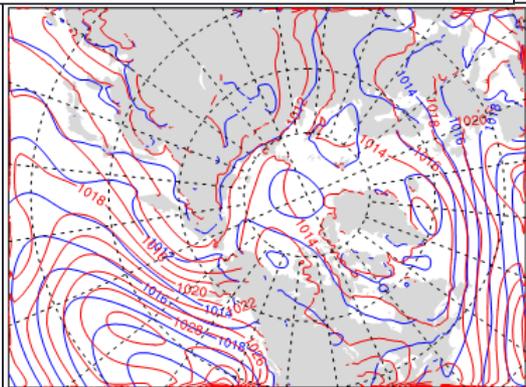
RACM



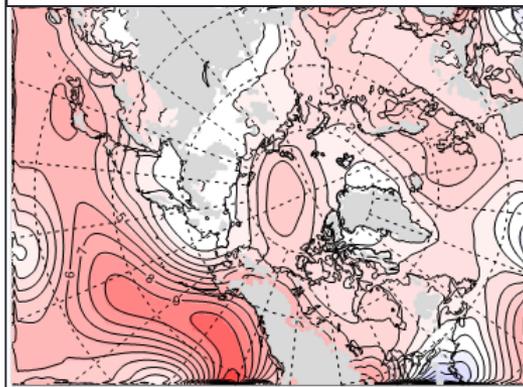
WRF



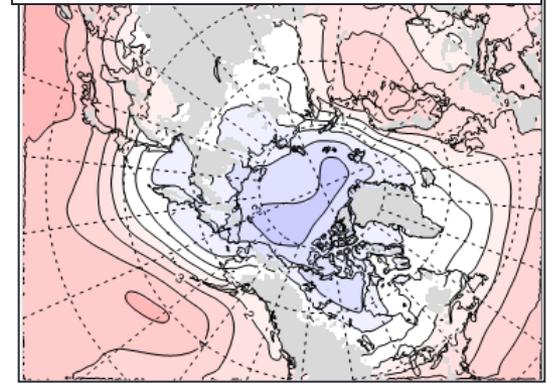
ERA-Interim & RACM



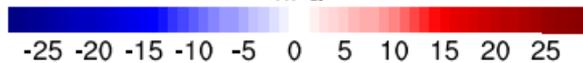
RACM – ERA-Interim



WRF – ERA-Interim



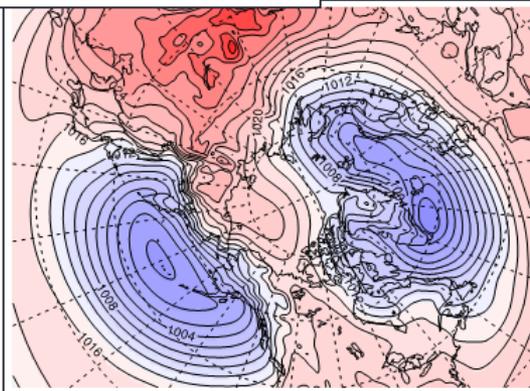
hPa



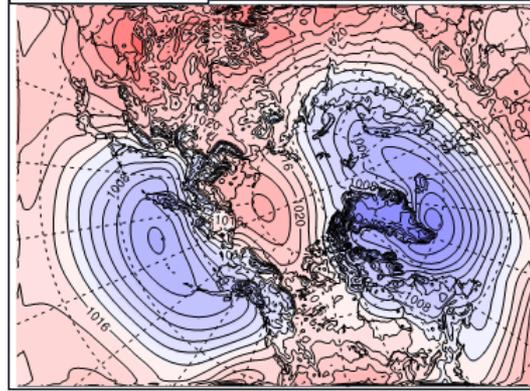
Sea Level Pressure – Winter

1989-2002 DJF Climatology

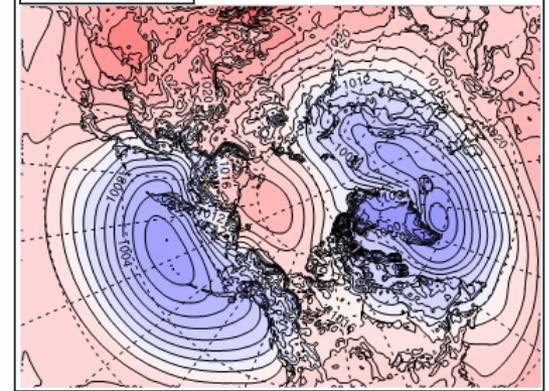
ERA-Interim



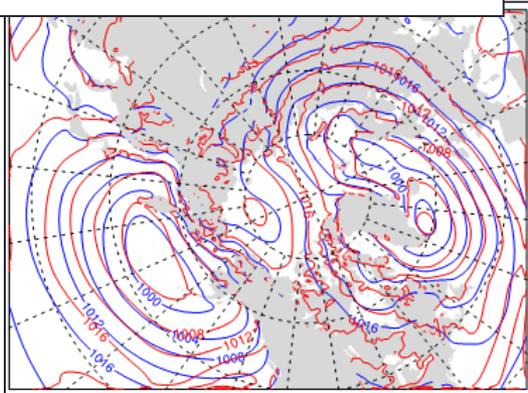
RACM



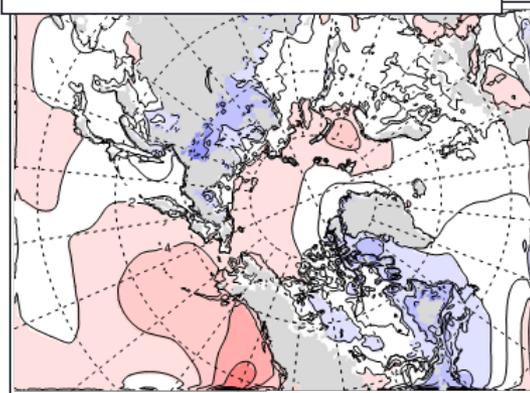
WRF



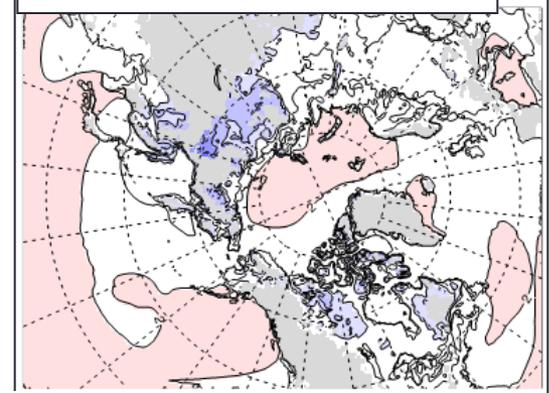
ERA-Interim & RACM



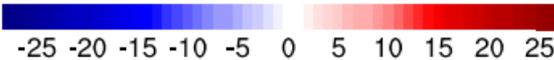
RACM – ERA-Interim



WRF – ERA-Interim



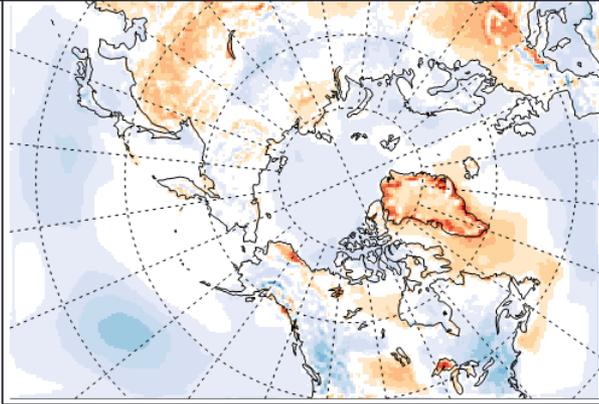
hPa



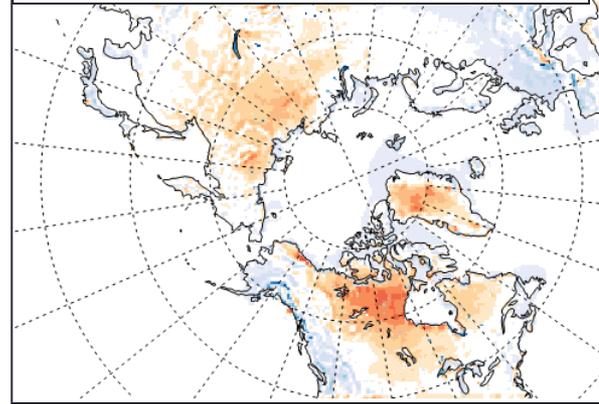
Near Surface Temperature

1989-2002 JJA and DJF Climatology

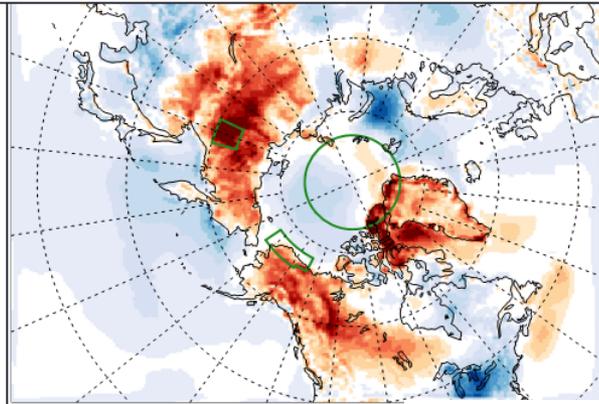
RACM – ERA-Interim JJA



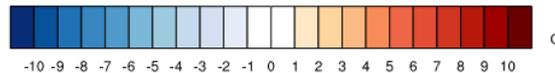
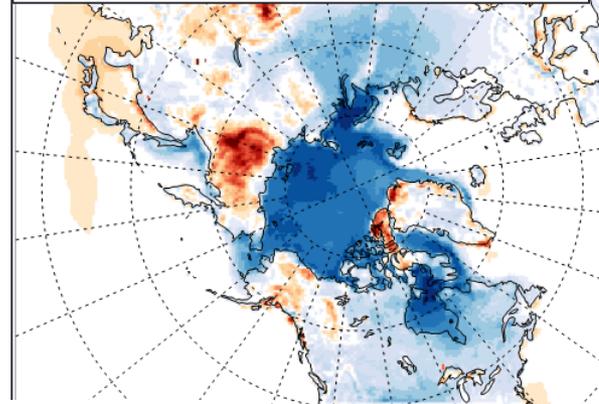
WRF – ERA-Interim JJA



RACM – ERA-Interim DJF



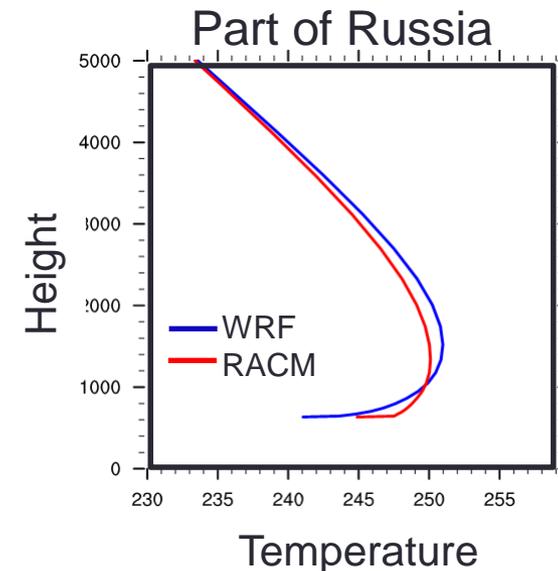
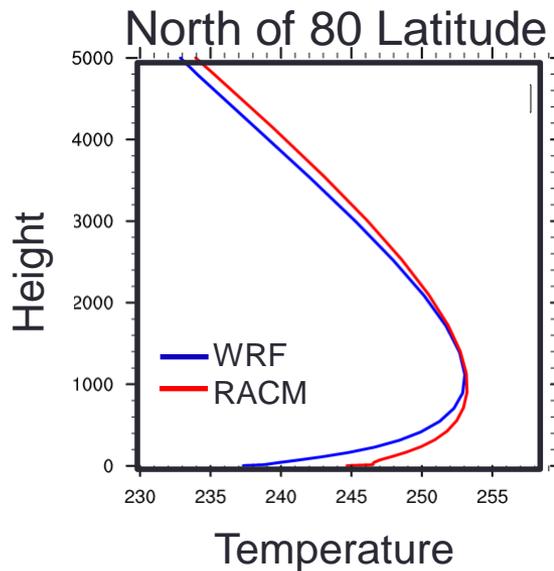
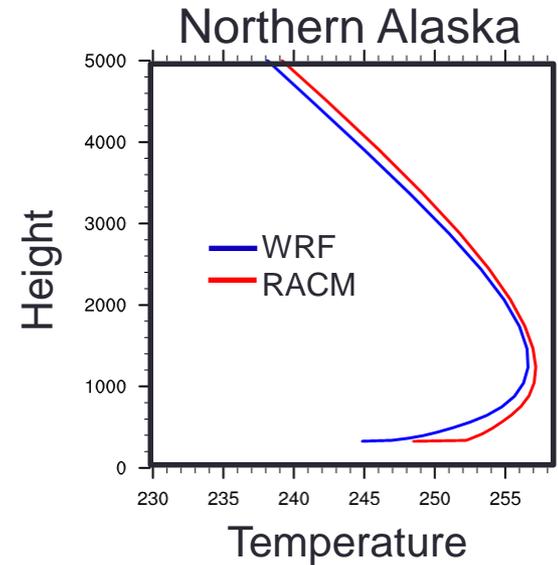
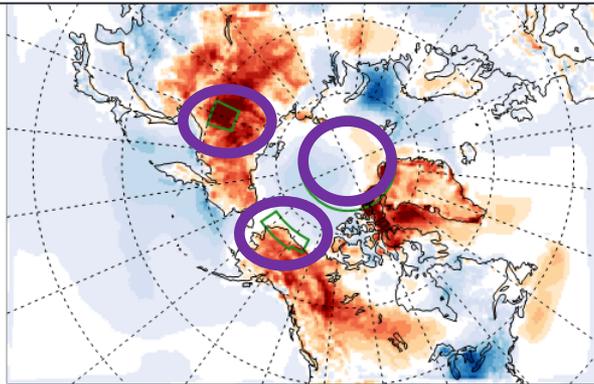
WRF – ERA-Interim DJF



Temperature Profiles

1989-2002 DJF Climatology

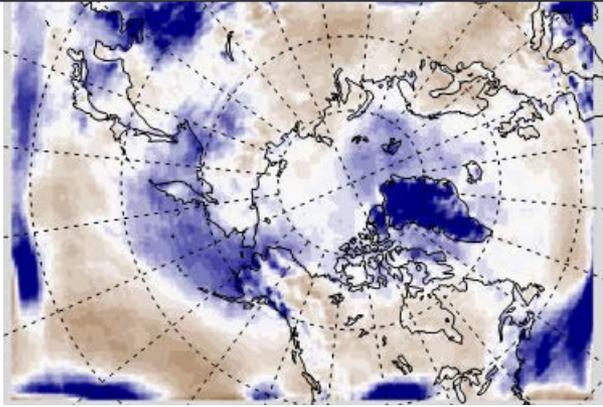
RACM – ERA-Interim DJF



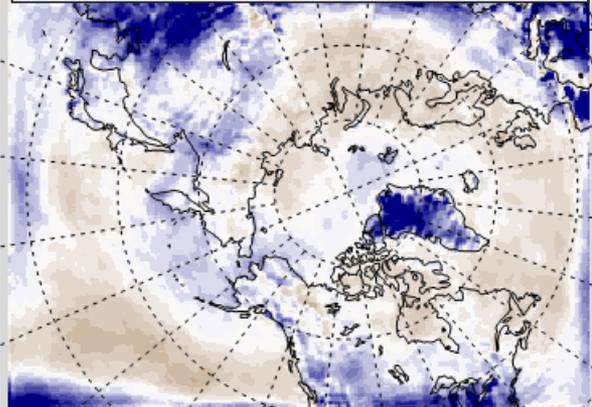
Precipitation

1989-2002 JJA and DJF Climatology

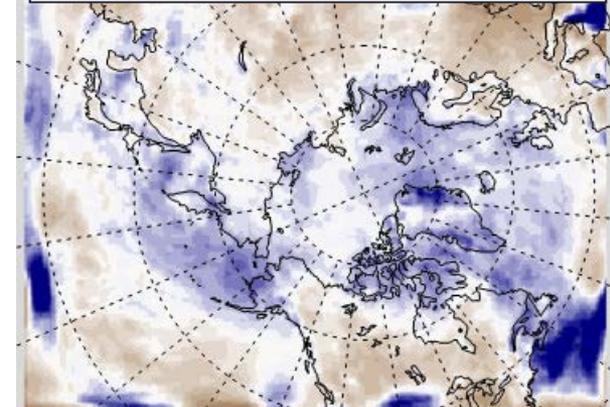
RACM – ERA-Interim JJA



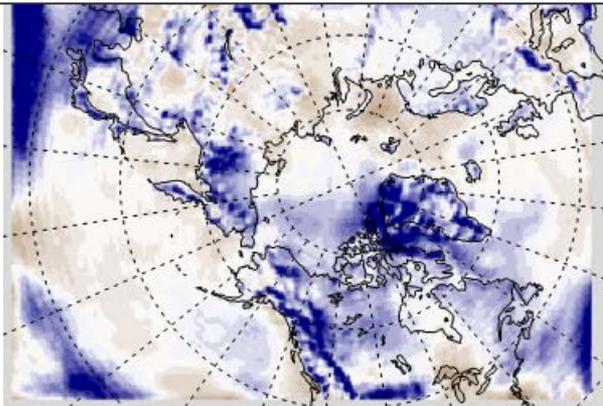
WRF – ERA-Interim JJA



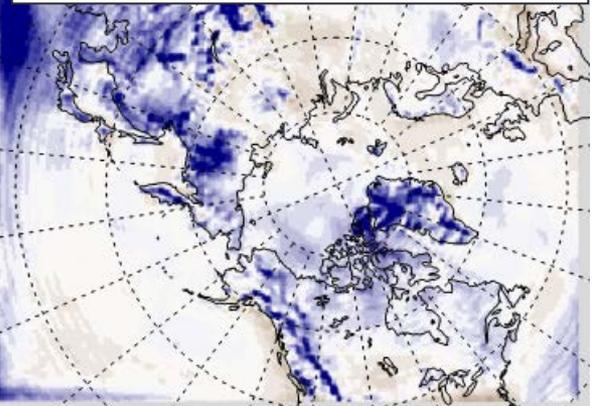
RACM – WRF JJA



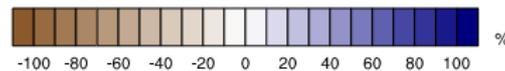
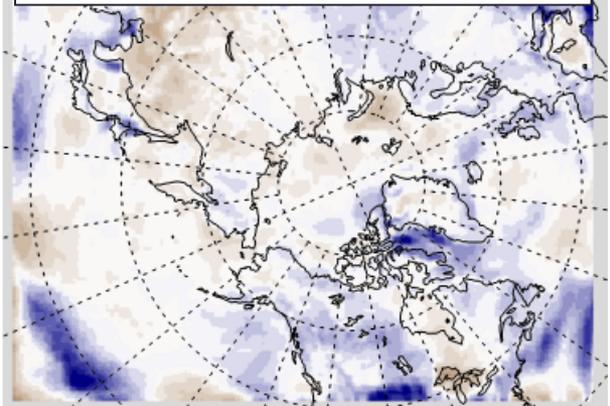
RACM – ERA-Interim DJF



WRF – ERA-Interim DJF



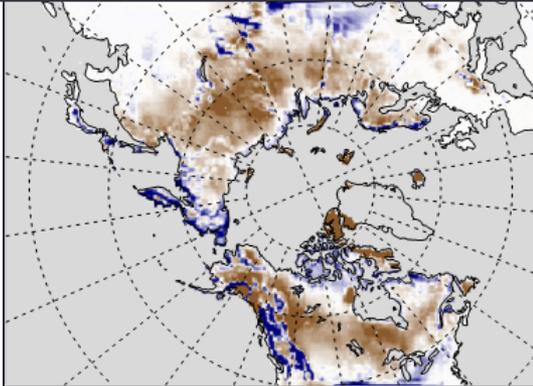
RACM – WRF DJF



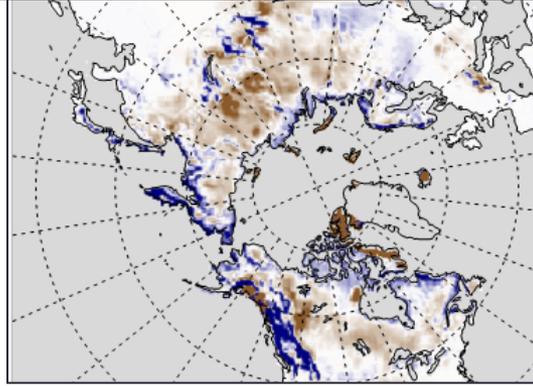
Snow

1989-2002 DJF Climatology

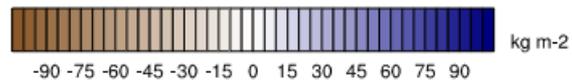
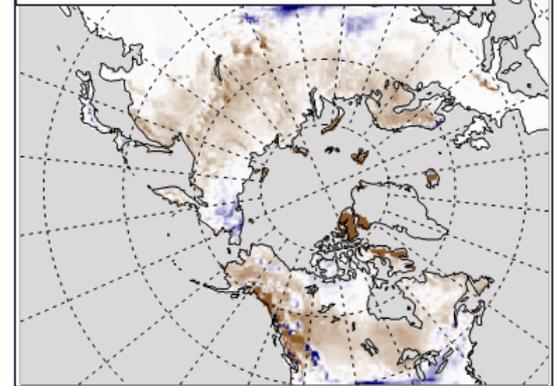
RACM – ERA-Interim DJF



WRF – ERA-Interim DJF



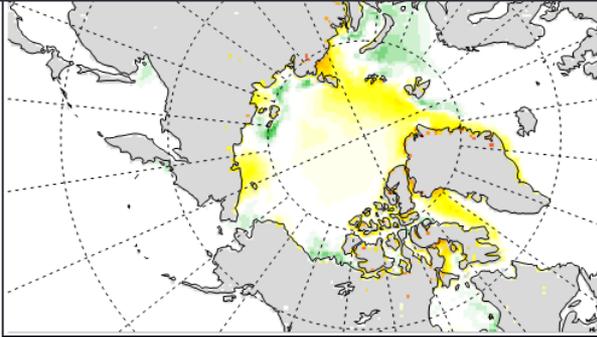
RACM – WRF DJF



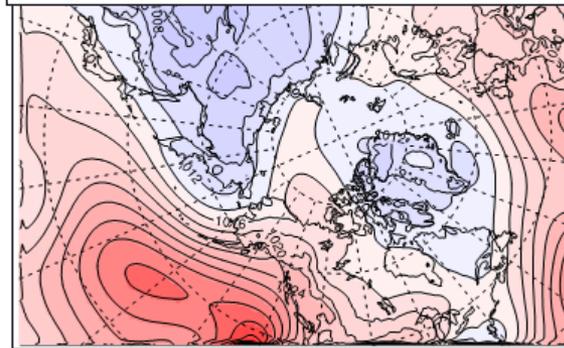
Sea Ice Fraction and SLP

1989-2002 JJA and DJF Climatology

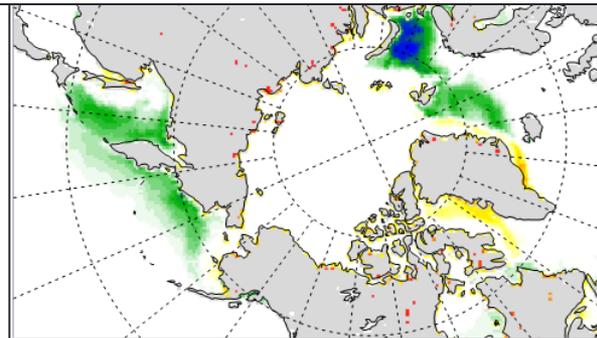
RACM – NSIDC JJA



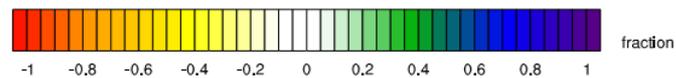
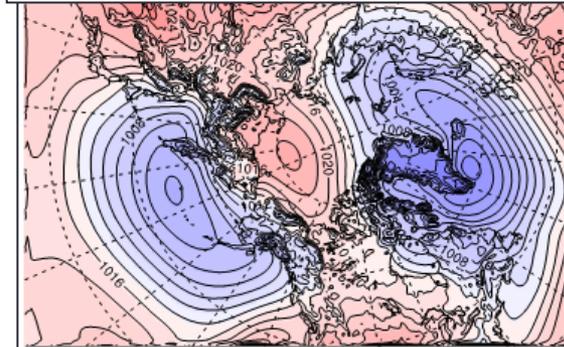
RACM JJA SLP



RACM – NSIDC DJF



RACM DJF SLP



Conclusions

- atmospheric circulation
- near-surface atmospheric temperature
 - over sea ice
 - over land
- sea ice evolution

Next Steps

- lateral forcing from future climate projections
- additional climate system components